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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,247	09/15/2003	Derrick Lin	42P10543C	2876

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EXAMINER

THAI, TUAN V

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/663,247

Applicant(s)

LIN, DERRICK

Examiner

Tuan V. Thai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 12-14, 16, 17, 19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) 5-11, 15, 18 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 12-14, 16-17, 19 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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**Part III DETAILED ACTION**

***Response to Amendment***

1. This office action is in response to Applicant's communication filed March 07, 2005. This amendment has been entered and carefully considered. Claims 1-4, 12-14, 16-17, 19 and 21 remain pending in the application. Claims 5-11, 15, 18 and 20 were previously canceled.
2. The obviousness-type double patenting rejection of claims 1-4, 12-14, 16-17, 19 and 21 over claims 1, 3, 13, 15-17 and 19 of U.S. Patent No. 6,631,452 is withdrawn due to the terminal disclaimer filed March 07, 2005.
3. Applicant's arguments with respect to claims 1-4, 12-14, 16-17, 19 and 21 have been fully considered but they are not deemed to be persuasive.

***Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

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skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 12-14, 16-17, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen et al. (USPN: 6,006,318); hereinafter Hansen; in view of Dowling (USPN: 6,128,728).

As per claims 1, 12 and 16; Hansen teaches the invention as claimed including a method for managing data in a computer system comprising multiple memory devices 92 which are accessible by the general purpose media processor 12 (e.g. see figure 6; column 11, lines 43 et seq.); a register file coupled to the memory through a memory channel, the register file to store data for one or more procedures in one or more frames, respectively (e.g. see column 5, lines 34 et seq.). Hansen, with one exception, does not specifically disclose and a register stack engine to monitor activity on the memory channel for available bandwidth on the memory channel/bus and to transfer data between selected frames of the register file. Dowling, in his teaching of virtual shadow registers and virtual register windows, discloses the missing element that is known to be required in the system of Hansen in order to arrive at the Applicant's current invention wherein Dowling discloses the DMA/DRA controller (as being equivalent to the claimed register stack engine) for monitoring the bus (channel) activity to determine when unused memory bandwidth is

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available for moving/transferring the data contents between the shadow registers and memory buffer (e.g. see column 7, lines 43-49). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the current invention was made to employ the teaching of monitoring the activity of memory bus/channel for available bandwidth to transfer data within system units/frames as taught by Dowling for that of Hansen in order to arrive at Applicant's current invention. In doing so, it would (a) maximize the bus utilization to avoid any waste of channel bandwidth in data transfer, and (b) increasing system throughput; therefore being advantageous.

As per claim 2, wherein the memory includes a backing store/portions and the register stack engine transfers data between the selected frames and the backing store is taught by Hansen; for example, Hansen discloses his memory having multiple memory portions and instruction set from memory management unit preferably includes load and store instructions that move data between memory and the register file 110, branch instructions to compare the content of registers and transfer control, and arithmetic operations to perform computations on the contents of registers (e.g. see column 14, lines 59 et seq.; column 15, lines 48 et seq.);

As per claims 3-4 and 13, the further limitation of a portion of the register file is organized as a register stack is

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equivalently taught by Hansen as the 64 general purpose registers along with program counter/pointer contained in the register file 110 are all available to the user/programmer, and comprise a portion of the user state of the general purpose media processor 12, wherein the general purpose registers are preferably capable of storing any form of data (e.g. see column 13, lines 10 et seq.);

As per claim 14, Hansen discloses filling data from the backing store to a current oldest clean register when capacity is available on the memory channel is taught as the concept of data fetching/pre-fetching (e.g. see column 5, line 66 bridging column 6, line 25);

As per claim 17, the further limitation of a load/store unit and the register stack engine monitors the load/store unit to determine available bandwidth to the memory system is taught by Hansen as the instruction set from the management unit preferably includes load and store instructions that move data between memory and the register file 110, branch instructions to compare the content of registers and transfer control, and arithmetic operations to perform computations on the contents of registers (e.g. see column 15, lines 48 et seq.);

As per claims 19 and 21, the register stack engine transfers data for inactive procedures responsive to a mode status indicator which is set under software control responsive to a

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type of application to run on the computer system is taught by Hansen to the extent that it is being claimed; for example, Hansen discloses when the communication channel 156 is inactive or idle, such as during initialization and between transmitted packets, an idle packet, consisting of an all-zero byte and an all-one byte is transmitted through the communication channel 156 wherein software is employed to adaptively adjust the skew in the channel 156 through digital skew fields (e.g. see column 22, lines 30 et seq. and column 20, lines 41 et seq.);

6. As to the remark; Applicant's counsel argue that (a) Dowling does not disclose monitoring the activity on a memory channel as is claimed in independent claims 1, 16 or monitoring operations on a memory channel as is claimed in independent claim 12.

(amendment's pages 11-12, second paragraph et seq.); (b) The combination of Hansen and Dowling is improper and do not arrive at Applicant's current invention (amendment's page 11).

With respect to (a); Examiner wholeheartly disagrees with the Applicant's counsel and would like to emphasize that the monitoring of the activity on the memory bus/channel is explicitly taught by Dowling as detailed above and in the previous action; for example, starting at column 7, lines 43 et seq., Dowling clearly discloses *the bus/channel activity is being monitored by the DMA/DRA controller to determine when unused*

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**memory bandwidth is available** in addition with other operations/activities on the memory bus. Noting the broad nature of the claim language being cited in the claims, e.g. "monitoring activity on the memory channel ... responsive to available bandwidth on the memory channel" that make the prior art of Dowling read on the claim regardless whether the channel/bus is internal or external as being argued by the Applicant. With respect to (b), in considering a 35 USC 103 rejection, it is not strictly necessary that a reference or references explicitly suggest the claimed invention (this is tantamount to a 35 USC 102 reference if the modifications would have been obvious to those of ordinary skill in the art. It has been held that the test of obviousness is not whether the features of a secondary reference may be bodily incorporated into the primary references' structure, nor whether the claimed invention is expressly suggested in any one or all of the references; rather, the test is what the combined teachings of the reference would have suggested to those of ordinary skill in the art. See In re Keller et al., 208 U.S.P.Q 871. In addition, Examiner further recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. In re Nomiya, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the



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modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (CCPA 1971). Hansen and Dowling references are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. In re Bozek, 163 USPQ 545 (CCPA) 1969. In this case, the Dowling reference was used to provide evidence of a register stack engine (DMA/DRA controller) to monitor activity on the memory channel for available bandwidth on the memory channel/bus and to transfer data between selected frames of the register file (or between the the shadow registers and memory buffer) (e.g. see column 7, lines 43-49). The combination would enhance system throughput and reliability by allow for continuously/uninterrupted servicing of system data transfers requests, it further maximize the bus utilization to avoid any waste of channel bandwidth in data transfer. The 35 USC § 103 rejection based on the combination of Hansen and Dowling is therefore deemed to be proper.

7. Applicant's arguments filed March 07, 2005 have been fully considered but they are not deemed to be persuasive.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. . 1.136(a).

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A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. . 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan V. Thai whose telephone number is (571)-272-4187. The examiner can normally be reached on from 6:30 A.M. to 4:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew M. Kim can be reached on (571)-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

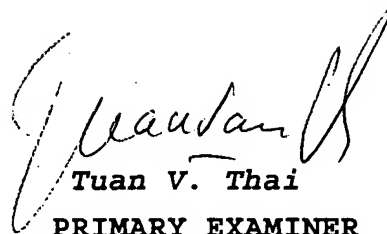
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Business Center (EBC) at 866-217-9197 (toll-free).

TVT/May 23, 2005

A handwritten signature in cursive script, appearing to read 'Tuan V. Thai', is written over the printed name.

Tuan V. Thai  
PRIMARY EXAMINER

Group 2100